

# INDIA WOOD SECTOR MARKET STUDY 2016



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## 1. Economic Overview

The growth of the Indian economy continues to be strong; the Indian Planning Commission's latest assessment for annual GDP growth stands at 6.3%, with inflation holding at around 5%. Wood consumption in India is growing fast, and although the country has more than 250 commercial timbers – including some of the most highly prized tropical hardwoods like teak, rosewood, padouk, red sanders and sandalwood – a strict conservation policy limits harvesting. This means India is a net importer of wood and wood-based panel products.

Indian industrial demand for wood jumped from 58 million cubic metres in the year 2000 to 85 million cubic

metres in 2008 and is expected to exceed 150 million cubic metres by 2018. Indian manufacturers prefer to import timber in log form to feed the domestic industry. This must be seen in the light of the fact that a major part of this industry (85%) is in the unorganised sector!

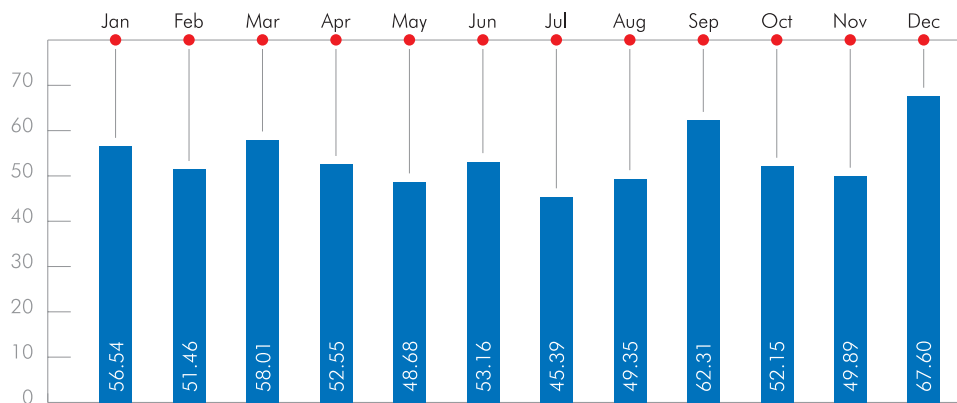
Imports of sawn wood have been increasing over the past year as the difference in import duties for logs and sawn timber has narrowed and because exporting countries are offering sawn timber at competitive prices.

Log consumption in the Indian panel industry is met largely from plantations, agro-forestry and (limited) natural forests. The concept of industry-owned plantations of eucalyptus, poplar, casuarina and *Acacia mangium* is gaining popularity, and this helps prevent illegal felling in state-owned forests.

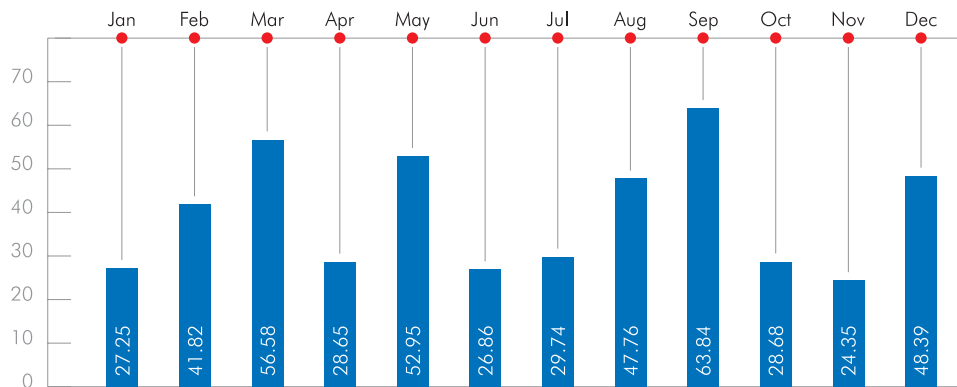


# 1. Economic Overview

**Wood Imports-2015 In Value (In US\$ Million)**



**Wood Imports-2015 In Quantity (In US\$ Million)**



**Top 10 Countries**



Sweden



United States



South Africa



China



Chile



Indonesia



Vietnam



Russia



Canada



Brazil



# 1. Economic Overview

## 1.1 Market Drivers



As in other markets, housing growth is a major driver of timber demand. In early 2010 the Indian property sector shifted perceptibly towards a seller's market, reflected in housing starts and timber imports. Business in the timber sector, especially for sawn wood and wood-based panel products for the housing sector, was brisk in the first quarter of 2010.

Reports suggest considerable increases in demand for PF-bonded film-faced plywood and doors and frames. Analysts say the market for machine-made doors and frames is steaming ahead at about 15% per annum. Importantly, this is driving the re-tooling of old factories.

India can no longer satisfy its demand for industrial round wood from domestic resources and, as a result, imports of industrial wood have grown threefold during the last 10 years, comprising mainly tropical logs from ITTO (International Tropical Timber Organization) producer countries. However, log imports of around 2 million m<sup>3</sup> annually still account for only a small share (<5%) of the national consumption of industrial round wood.

The industrial sector plays an important role in realizing higher economic growth in India. Riding high on the performance of the

# 1. Economic Overview

manufacturing sector, the industrial sector in India has registered higher growth during 2015-16. Many policy measures taken by the government for creating an enabling environment for industrial growth have started showing their impact on increased flow of foreign direct investment (FDI) and better performance of the infrastructure sector. Landmark initiatives – such as ‘Make in India’, ‘Ease of Doing Business’, ‘Start-Up India’, ‘Digital India’ and ‘Smart Cities’ – will provide further impetus to industries, and this sector is expected to be the key driver of economic growth in the country.



With 36 million manufacturing units spread across the country, which together employ more than 85 million people, the micro, small and medium enterprises (MSMEs) contribute 37.5% to India’s GDP. The sector has huge potential to help address challenges posed by unemployment, regional imbalances, unequal distribution of national income and wealth across the country.

FDI is an important driver of economic growth as it leads to productivity enhancement and is a major source of non-debt financial resource and employment generation. FDI inflows are critical

for sustaining a high growth rate. The government is playing a proactive role in investment promotion through a liberal FDI policy.

Reflecting better economic performance and commitment of the government to reforms, the global perception about India’s competitiveness has improved as per the Global Competitiveness Index of the World Economic Forum. At position 55, India climbed 16 rungs in 2015-16, which is the largest gain among major economies.

## 2. India's Demographics



The Indian economy grew at an average of 7.6% during the country's 10th Five-Year Plan (2002-07) and 8.05% during the 11th Five-Year Plan (2008-12). However, in the last two years, India's GDP growth dropped below 5% due to a slowdown in the global economy and domestic constraints such as higher inflation with rising fuel and food prices, and a slowdown in manufacturing.

However, the World Bank predicts not only a recovery of the Indian economy but also expects it to emerge as the strongest among other major developing economies. In 2016, the Indian economy is expected to grow by 7.1%.

More Indians live in cities today than in the past. According to the Census of India report (2011) the

urban population had grown to 377 million, representing 31% of the total population. By the year 2030, the population in India's cities will increase to 590 million – 40% of the total population. Five states are likely to be more than 50% urbanized; among them Tamil Nadu, Gujarat, Maharashtra, Karnataka and Punjab. Clearly, India's growing urbanization is an interesting opportunity, apart from the fact that:

- 49% of population less than 24 years old; 70% aged less than 40 years
- Home ownership increasing due to attractive bank finance schemes
- High growth in commercial and office space (55 million sq. ft. a year)
- GDP growth trajectory 8% per year, largely driven by domestic market

## 2. India's Demographics

### 2.1 'Make In India'

With the objective of making India a global hub of manufacturing design and innovation, the 'Make in India' initiative has been set in motion by the Union government. It is based on four pillars: new processes, new infrastructure, new sectors and a new mindset. This is expected to boost entrepreneurship, not only in manufacturing but in relevant infrastructure and service sectors as well.



governments, industry leaders and other stakeholders. It has formulated a strategy for increasing the contribution of the manufacturing sector to 25% of the GDP by the year 2020. The Government of India has set up 'Invest India' as a national investment promotion and facilitation agency.

An interactive portal, <http://makeinindia.com>, for dissemination of information and interaction with investors has been created with the objective of generating awareness about investment opportunities and prospects in the country, to promote India as a preferred investment destination in markets overseas and to increase India's share of global FDI.

In addition, information on 25 thrust sectors, along with details of the FDI policy, national manufacturing policy, intellectual property rights and the proposed national industrial corridors – including the Delhi-Mumbai Industrial Corridor (DMIC) – are available on the portal. The Department of Industrial Policy and Promotion (DIPP) is spearheading the initiative in consultation with various central ministries, state

As envisaged by the National Manufacturing Policy (2011), the 'Start-up India', 'Stand-up India' campaigns have been announced. An innovation promotion platform, the Atal Innovation Mission (AIM), and a techno-financial, incubation and facilitation programme called Self-Employment and Talent Utilization (SETU) are being implemented. An 'India Aspiration Fund' has also been set up under the Small Industries Development Bank of India (SIDBI) for venture capital financing of newly set-up or expanding units in the MSME sector. Further, a Micro Units Development Refinance Agency (Mudra) Bank has been set up to provide development and refinance to commercial banks, cooperative banks and non-banking financial companies (NBFCs) for loans given to micro-units.



## 2. India's Demographics



### 2.2 'Smart' Cities

With increasing urbanization, opportunities and challenges related to urban infrastructure are also increasing. The Government of India has launched a mission on Smart Cities, with the collaboration of states, to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to smart outcomes.

The focus is expected to be on sustainable and inclusive development, with a replicable model that will act like a lighthouse to other aspiring cities. The core infrastructure development in a smart city includes adequate water and electricity supply; sanitation and solid waste management; efficient

urban mobility and public transport; affordable housing, especially for the poor; robust IT connectivity and digitization; good e-governance with citizens' participation; safety and security of citizens, particularly women, children and the elderly; and health and education.

The strategic components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (re-development) and city extension (greenfield development), plus a pan-city initiative in which smart solutions are applied covering larger parts of the city. Retrofitting will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and liveable. In retrofitting, an area consisting

## 2. India's Demographics

of more than 500 acres will be identified by the city in consultation with citizens.

Re-development will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Re-development envisages an area of more than 50 acres, identified urban land banks in consultation with citizens.

Greenfield development will introduce most of the smart solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (land pooling and reconstitution) with provision for affordable housing, especially for the poor. Greenfield development is required around cities in order to address the needs of the expanding population.

The Smart Cities Mission will cover 100 cities which have been distributed among the states on the basis of equitable criteria. The distribution of smart cities will be reviewed after two years of the implementation of the mission. Based on assessment of the performance of states, some reallocation of the remaining

potential smart cities among states may need to be done by the Union government.

The Smart City Mission will be operated as a federally sponsored scheme with financial support to the extent of US\$ 7.38 billion over 5 years, i.e. on an average US\$ 15.38 million per city per year. An equal amount will have to be contributed by the state. In the first phase of implementation, 20 cities have been shortlisted to roll out the programme.

### 2.3 Banking System

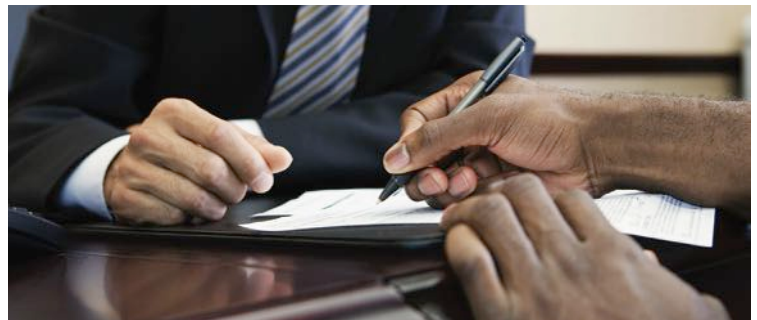
The pace of development of the Indian banking industry has been tremendous over the past decade. As the world reels from the financial meltdown, India's banking sector has been one of the very few to actually maintain resilience while continuing to provide growth opportunities, a feat unlikely to be matched by other developed markets around the world. Some of the major strengths of the Indian banking industry are its regulatory and risk management systems, credit quality, advanced technology, economic growth and relative insulation from external markets.

India Inc. is completely dependent on the banking system for its funding

## 2. India's Demographics

requirements. One of the major complaints from the industry has, in fact, been high lending rates in spite of massive cuts in policy rates by the Reserve Bank of India (RBI). The global financial meltdown, which had its origins in the sub-prime mortgage crisis originating in the US, has led banks in India to be more conservative in their lending practices, and consequently a rise in capital costs for corporates. The RBI has played a key role in assisting the banking sector in managing its liquidity and, despite recent events, the medium- to long-term India growth expectations remain intact.

Capital adequacy is seen as important to the stability of the banking system. The minimum Capital to Risk-weighted Asset Ratio (CRAR) in India, as required by the RBI, is placed at 9%, one percentage point above the Basel-II requirement. Public sector banks are further required to maintain a CRAR of 12% by the Government of India. India has an expanding middle class of



up to 300 million people in need of varied banking services. While 60% of its population has access to banks, only 15% of them have loan accounts, and an overwhelming 70% of farmers have no access to formal sources of credit – but this only reflects the immense potential for the banking system.

NBFCs are fast emerging as an important segment of the Indian financial system. Gradually, they are being recognised as complementary to the banking sector due to their customer-oriented services, simplified procedures, attractive rates of return on deposits, and flexibility and timeliness in meeting the credit needs of specified sectors.

### 3. Wood Consumption



India abounds in several tree species whose wood is used for making furniture. Apart from indigenous material available in India, many species of wood are also imported to make up for the shortfall in domestic supply. Popular wood types used in India include walnut, sandalwood, teak, sheesham, deodar, ebony, redwood, rosewood, red cedar and sal.

Teak accounts for almost 50% of the total wood consumption for furniture; sal and deodar account for another 20% and the balance includes mahogany, cedar and other species. India also has an abundant supply of rubber wood: natural rubber plantations cover 520,000 hectares, with an additional 6,000 hectares being replanted almost every year since 1994. The southern state of Kerala produces 95% of the total supply of rubber wood in India. Economic and population growth have dramatically increased wood demand in India, and this trend is expected to continue. Total consumption is projected to rise from

58 million cubic metres in the year 2005 to 153 million cubic metres in 2020. As consumption rises and domestic supply remains static, imports have grown to fill the gap.

- In 1994 only 2% of wood consumption for furniture was from imports
- By 2006, consumption of imported wood for furniture stood at 17%
- Imports amounted to 6 million cubic metres, valued at US\$ 1.6 billion
- Almost 70% of imports are hardwoods, mostly logs
- Sawn wood accounted for only 3% of imports in value
- Sawn wood demand increasing due to supplier bans on log export.

India is the second-largest importer of tropical logs in the world. At any given time, around 30% of all tropical logs in trade are destined for India. Import of logs represent over 74% of the total imports of forest products in the country. Among the reasons for importing logs into India are the simple and cost-effective 23,000-odd saw mills in the country, 98% of which are small units with an annual log intake of only 3,000 cubic metres. The total production capacity is estimated at around 27.12 million cubic metres per annum.



## 3. Wood Consumption

### 3.1 Illegal Timber

About 17% of imports to India are estimated to be of illegal origin. Although per capita illegal wood consumption is low, the country's size means that it is nevertheless a major importer of illegal wood. Its consumption of illegal wood is rising more rapidly than that of any other country surveyed. India's imports of illegally sourced timber and wood products increased dramatically between 2002-11, from 1 million cubic metres to 3.5 million cubic metres. Estimated imports of illegally sourced wood products increased by 30% in the year 2011 alone. The vast majority of the estimated imports of illegally sourced wood are logs from Sarawak (Malaysia & Indonesia) and Myanmar, plywood, furniture and paper from China, and pulp and paper from Indonesia.



All of these sources increased dramatically in 2011, with the exception of logs from Sarawak. India is the largest destination for high-risk tropical log exports from Myanmar and Sarawak.

## 4. Construction Industry



The real estate sector is important and critical to the Indian economy. It is growing at a rate of 20% per annum and contributes 8% to India's GDP. Since it has a ripple effect on the economy, it is considered a big driver for economic growth. In 2005, the government allowed 100% FDI in the construction and development sector in order to catalyse investment in a vital infrastructure sector of the economy. India has huge potential to attract foreign investments into real estate.

India is expected to become the third largest construction market in the world by the year 2025, when 11.5 million new houses a year are expected to be added making it US\$ 0.93 trillion a year market in the year 2025. The construction industry in India recorded a growth of 5.9%

during 2012-13 because the metro cities of Bengaluru, New Delhi and Mumbai witnessed high level of residential and commercial activities.

The growth of real estate will have a direct impact on the use of various interior products. The influencing factors and demand drivers are:

- Growing urbanization
- Rise in disposable income
- Growth in premium housing, office and hospitality
- Demand for high quality products, brand consciousness
- Presence of international companies in India
- Economic growth forecast >7% of GDP
- 40% of India's population living in cities by 2030

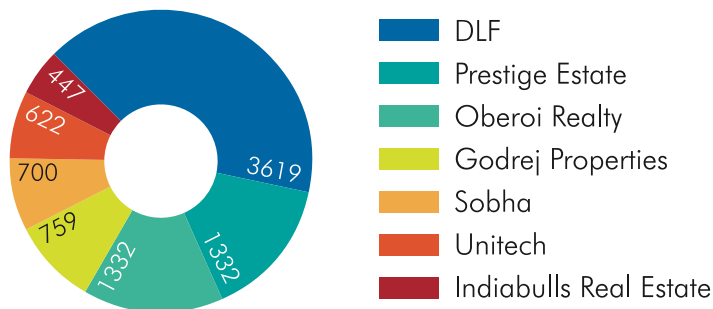
## 4. Construction Industry

### 4.1 Housing Sector

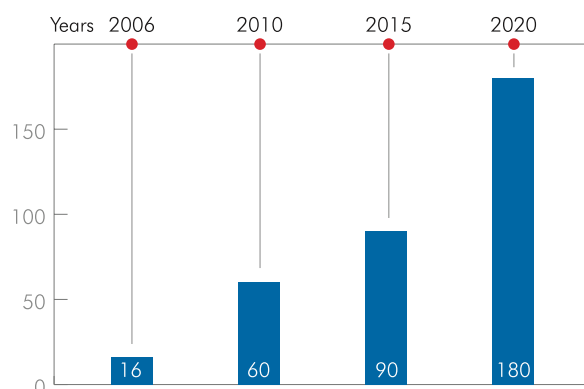
The Indian real estate market accounted for more than 50% of all investment activity in India in 2014, compared with just 26% in 2013. It is expected to touch US\$ 180 billion by 2020. According to data released by the Department of Industrial

Policy and Promotion (DIPP), the construction development sector in India has received equity inflows to the tune of US\$ 24.19 billion in the period April 2000-March 2016. Cities such as Pune, Bangalore, Hyderabad and Chennai have a vacancy rate of just 5-10%, prompting the need for fresh supply to meet growing demand.

Real Estate Market Capitalisation (In US\$ Million)



Indian Real Estate Market Size (In US\$ Billion)



## 4. Construction Industry

### 4.2 Hotels & Resorts

India is a large market for domestic and international business travel and tourism. The total contribution of the travel and tourism sector to India's GDP is expected to increase from US\$ 136.3 billion in 2015 to US\$ 275.2 billion in 2025. India's hotel real estate sector landscape is evolving from being largely development-driven to becoming more transaction-driven. The Government has also been making serious efforts to boost investments in the tourism sector. In the hotel and tourism sector, 100% FDI is allowed through the automatic route. India has an estimated 170,000 hotel rooms. Even with the expected addition of another 60,000 hotel rooms (across segments) over the next 5 years, the industry is expected to fall short of meeting the long-

term demands of an economy growing at 7-9% per annum. Also, as per Cygnus estimates, around 40 international brands are expected to enter the country in the next 5 years. According to the India Brand Equity Foundation, the number of foreign tourist arrivals (FTAs) in India grew 4.5% during January-November 2015. The number of FTAs in November 2015 was 815,000, registering an increase of 6.5% over November 2014. In the long term, the demand-supply gap in India is very real and there is need for more hotels in most cities.

The shortage is especially true within the budget and the mid-market segments. Various domestic and international brands have made significant inroads into this space and more are expected to follow as the potential for this segment of hotels becomes more obvious.





## 4. Construction Industry

### 4.3 IT & Business Parks

The Government of India, along with the governments of the respective states, has taken several initiatives to encourage the development the information technology and IT-enabled sectors. The 'Smart City' project, where there is a plan to build 100 smart cities, is a prime opportunity for the real estate companies.

India has also launched an ambitious project: Housing for All by the year 2022. Under the Sardar Patel Urban Housing Mission, 30 million houses will be built in India by that deadline, mostly for the economically weaker sections and low-income groups, through public-private-partnerships and interest subsidies.



## 5. Joinery Sector



Timber scores high on all parameters: durability, climate resistance, local availability and sustainability. Over a period of time, as society has become more informed and sophisticated, it has become evident that wood, a sustainable resource unlike any other, requires human interaction and good management to ensure true sustainability. This growth is going to drive the demand for modular kitchens, flooring, furniture and fixtures as well.

Also, growing pressure to reduce the carbon footprint of the built environment, engineers and architects are increasingly being called upon to balance functionality and cost objectives with reduced environmental impact. Wood helps to achieve that balance and it outperforms concrete and steel in terms of embodied energy, greenhouse gas emissions and air and water pollution. Wood showcases the beauty of nature, radiates warmth and adds value.

### 5.1 Wooden furniture

The woodworking industry is one of the fastest growing in India's economy. India possesses around 100,000 registered woodworking units and more than 200,000 artisans, along with countless other woodworking related units in the sector. The industry is estimated to be worth around US\$ 18.46 billion and is said to be growing at 30% CAGR. The readymade kitchen industry itself stands at US\$ 3.08 billion. There are over 10,000 units of kitchens sold every month and is expected to grow up to 15 times bigger in the next 5 years. The organised segment, which comprises of mainly imports and a few Indian manufacturers, accounts for about 20% of the total pie.

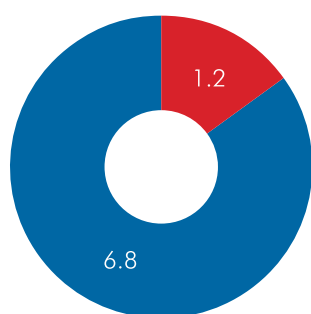


## 5. Joinery Sector

A major chunk of the organised imported segment (80%) comprises of home furniture. The growth in the organised segment is quite obvious from the fact that some major chains and hyper-malls have already started stocking furniture and furniture accessories and have had a good response on that front. Manufacturers consider several aspects related to the

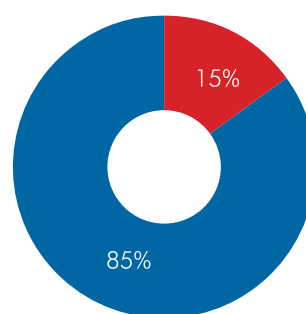
customer (demography, lifestyle, motivation and aspiration, needs and preferences), raw material (type, quantity and availability) and internal capability (expertise, labour cost, production process complexity and delivery time) for developing different designs, which in turn, determine the furniture's functionality, look-feel and value.

**Indian Furniture Industry  
(In US\$ Billion)**



■ Organised

**Indian Furniture Industry  
Organised : Unorganised**



■ Unorganised

## 5. Joinery Sector



### 5.1.1 Furniture Trade

India is famed for its traditions, culture, heritage and handicrafts. It has established its reputation in the field of wood crafts and furniture. Antique furniture, intricate hand-carving and traditional designs have helped India become an exporter. But this largely unorganised sector makes a marginal contribution (0.5%) to the nation's GDP. The Indian furniture industry is gradually transforming into a more organised and competitive sector. The entry of global brands in the market, emergence of large retail players and the resultant consolidation are trends that highlight this transformation.

India was the largest importer of furniture in the world in 2004-05, with a 17% share in the global

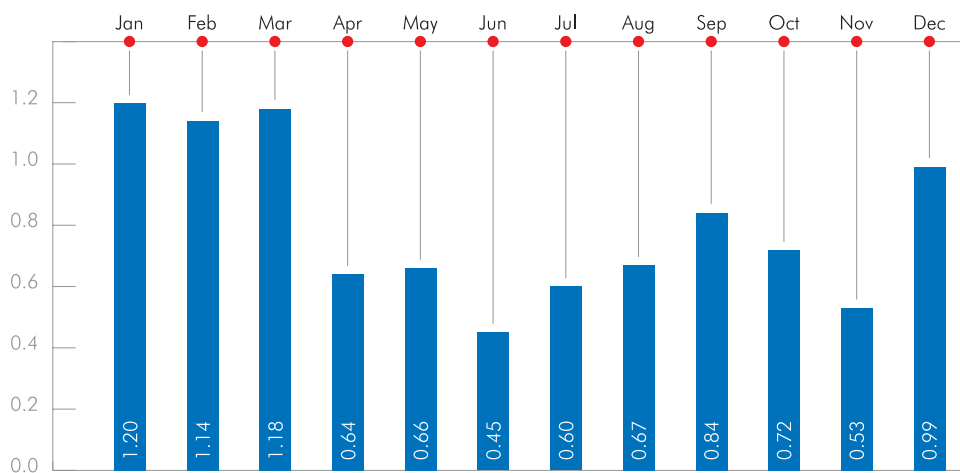
market. A total of 10,476 importers shipped finished furniture to India during this period, mainly from Italy, Germany, Spain, China, Korea, Malaysia, Indonesia, the Philippines and Japan. Furniture imports in India have witnessed a 64% compounded annual growth rate over 2001-06. A major factor that has propelled the growth in the imported furniture market is the increasing exposure of Indians to global trends and lifestyles. The three key drivers that have had a significant impact on the sector are:

- Changing demographics: younger consumers with larger budgets
- Real estate and housing boom to accommodate a truly global service industry
- Growth of the tourism and hospitality industries.

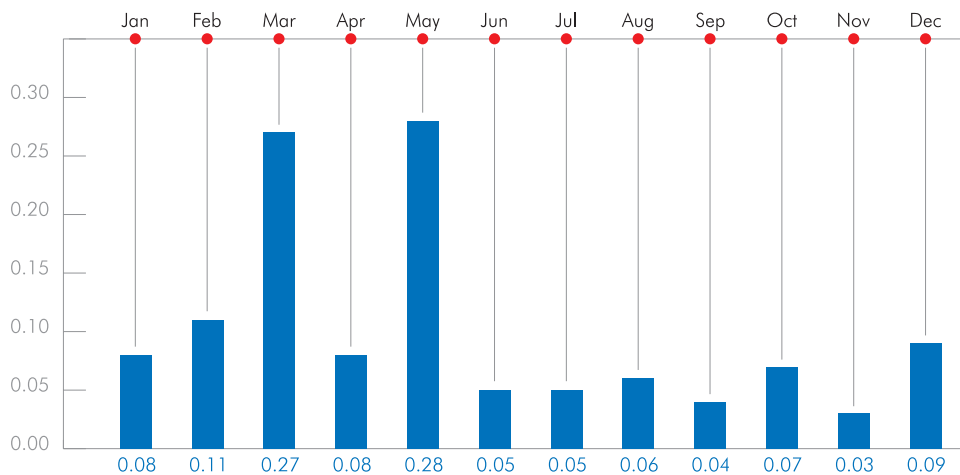


## 5. Joinery Sector

**Furniture Imports-2015 In Value (In US\$ Million)**



**Furniture Imports-2015 In Quantity (In US\$ Million)**



**Top 10 Countries**



China



Italy



Malaysia



Thailand



Germany



Indonesia



UAE



Spain



France



United States

## 5. Joinery Sector

### 5.1.2 Growth Of Retail

A new breed of well-organised, mechanised modular furniture manufacturing factories are emerging in Karnataka, Kerala, Gujarat and Maharashtra. There are efforts to establish “furniture manufacturing clusters” close to important wood-importing ports in the country, notable among them being ports located in Gujarat, Andhra Pradesh, Odisha, Kerala and Tamil Nadu. Global furniture giant, Ikea, has also shown interest in this development.

Manufacturers in India usually use a three-tier selling and distribution structure, comprising of the distributor, wholesaler and retailer. The market is mainly concentrated in A, B and C category cities, comprising of the top 589 cities in the country. As with the global market, home furniture is the largest segment in the Indian furniture market, accounting for about 65% in value of sales. This is followed by the office furniture segment (20% share) and the hospitality segment accounting for the remaining.

The office furniture segment caters to commercial and office space, and has witnessed rapid growth in recent

years, in line with the growth in the Indian economy and subsequent demand for office space. There are around 1,200 hotels in India in the organised sector. More than 10% of these are in the 5-star category and are part of various international hotel chains.

### 5.2 Doors & Windows

Windows and doors play an important role in design aesthetics of the interiors of any place or home décor. Windows in the older times primarily consisted of wood, aluminum or iron. As time passed, technology made use of other alternate material, as well as possibility of various designs. In India, the door and windows market is still growing as people are exposed to innovative products and increasingly looking for enhanced lifestyle and living standards with modern design and concepts.

Based on housing stock growth trends, annual demand for doors stands at 36 million. According to industry sources, readymade doors accounts for less than 15% of the market per year. In this, wooden doors account for 70% per year. Flush doors account for 70% of the market and panel doors account for about 10%. Doors made from

## 5. Joinery Sector



MDF and moulded-skin high density doors account for another 10% of the market. Doors made of other materials, such as rubber wood, make up the rest of the market.

In value terms, the Indian market for readymade wooden doors is estimated to be in the region of US\$ 520 million. The hospitality segment offers more growth for the timber-based industry. India presently has an estimated 114,000 hotel room spread across various hotel categories. This sector will see a rise of over 65% in total hotel inventory by 2017 as nearly 52,000 new hotel rooms are expected to come into the market.

### 5.3 Interior Decoration

The key influencers in this sphere include the builders and developers, product manufacturers, architects and product distributors. The Indian market for interior building material sectors estimated to be worth US\$ 4.2 billion in 2012 with most segments growing at a compound annual growth rate of 20%, and 10% of this aggregate market comprises the rapidly growing premium segment.

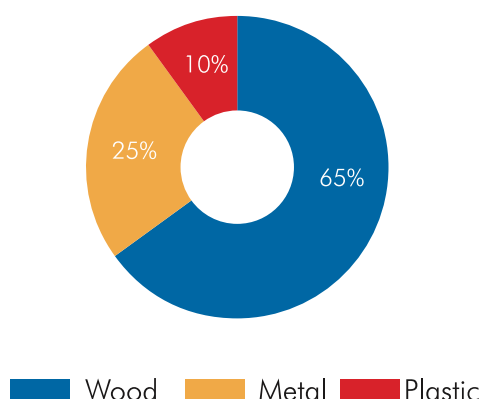
India is expected to become the third-largest construction market in the world by the year 2025. Major cities for timber-based building construction and interior design are: Bengaluru, Mumbai, Delhi, Pune, Ahmedabad, Chennai, Hyderabad, Coimbatore, Rajkot, Goa, Cochin, Nagpur, Pondicherry, Jamshedpur, Lucknow, Surat and Vijayawada.

## 6. Hardwood consumption sectors

### 6.1 Furniture

Indian wooden furniture industry which is estimated to be worth US\$ 5,358 million, is one of the biggest hardwood consumption sector. India is the land of marvellous artistic works, and also named for its tradition, heritage handcraft furniture. It has established its reputation in the field of wood crafts and furniture exports to countries like; United States, United Kingdom, Germany, France, among many others. Jaipur and Jodhpur region has emerged as the Indian hub for solid wood furniture, catering both exports and domestic market. The recent boom in online furniture retailing has fuelled this growth trajectory and expected to contribute more to this region.

#### Indian Furniture Industry-Raw Materials Usage



### 6.2 Doors & Windows

It is estimated that India requires 25 million doors every year and the potential is so huge that more than double the present capacity is required to fulfil the demand for doors. Traditionally, carved wooden door is an integral part of every home in India. But the solid wood door industry's biggest challenge is shortage of timber in the country, which is restricting the use of wood, and this is adversely affecting the door industry. Also, the thickness of imported wood is not as per Indian specifications which are affecting the industry. The Pre-hung doors or Door-set concept is becoming popular now in India and the market is poised to see growth.

Carpenter-made wooden windows are quite common in Indian homes across the country but majorly concentrated in the unorganised manufacturing sector. On the high end of the market, most modern buildings have opted for steel, aluminium or PVC windows. Generally, PVC windows are the first choice in India today as they offer the best price-performance ratio and are also very durable.



## 6. Hardwood consumption sectors

### 6.3 Interior Decoration & Structural Application

Wood was the traditional choice of building material for manufacturing structural beams, doors, windows, wall panelling, flooring and many other applications because of the availability, practicality and appearance. But in the current scenario, use of wood as building material has mostly narrowed down to wall panelling and other interior decoration applications. Though largely an unorganised sector, a recent study indicates that the interior designing market in India is growing at a whopping 60 per cent.

Rapid urbanization and growing consumption have changed the way Indian people do up their homes, this has fuelled the interior decor industry, which provides everything - from design services to even customizing interiors according to personal choices. As per a market study by research firm Technopak, "The Indian Home Décor market, which stood at \$13 billion in 2010, and the growing demand for residential projects consisting of specifically western style houses with wooden frame constructions has favourably impacted growth.

### 6.4 Flooring

Wood flooring is considered as a status symbol as a result of which it has been witnessing significant adoption rate in India over the last few years. India wood and laminate flooring market size was estimated to be USD 113.5 million in 2013. Increasing renovation and floor replacement activities in residential and commercial application is expected to drive the industry. Domestic sourcing accounts for just a handful of the supplies in the wood flooring market; a vast majority of the supplies are imported from sources as diverse as Scandanavia and China. The commercial wood and laminate flooring market accounted for over 55% of the share in 2013 on account of high demand from corporate offices, five-star hotels, restaurants, showrooms, and retail outlets.

Although wood flooring is very popular, few people prefer to get their entire house covered by it. "Mainly wooden flooring is done in bedrooms and living room for aesthetic appeal. Moreover it is even costlier than good quality tiles and marble." If past consumption patterns are observed then wood flooring should take in about 15% of the market or almost 10 times the current size. The current growth rate

## 6. Hardwood consumption sectors

of about 20% pa in this category is a good indicator of things to come.

### 6.5 Plywood & Veneer

Plywood industry consumes major share of composite wood in India. Indian plywood industry is estimated at US\$ 1,200 million and the laminate industry at almost US\$ 462 million, expected to grow 10% annually. The Indian plywood market is fragmented with small and medium-sized companies accounting for almost 80% of the total market. The rest is supplied by large companies with the advantage of volume, quality and superior manufacturing facilities. Plywood alone accounts for 78% of the wood panel market in India, the rest comprising engineered panels like MDF and particleboard. Their product categories include veneer sheets, particle board, fiber board, plywood from hard and softwood, veneered panels and laminated woods and medium density fiber boards.

Imports constitute 20% of the total annual wood consumption in India, while plantations and forestry contribute 58% and 22% respectively. The import of plywood and other panel products from China make it difficult for Indian producers to pass these cost increases to consumers. India imported plywood worth US\$ 249 million with total

quantity of 51.6 million. China is the largest supplier of plywood accounting for imports worth US\$ 104 million followed by Indonesia and Malaysia which exported plywood worth US\$ 72.5 million and US\$ 26.2 million respectively. The contribution of this sector has gone up to US\$ 15.7 billion in 2010-11 compared with US\$ 5.5 billion in 2004-05, registering annual compound growth of 19.16%.

### 6.6 Other wood products

Among the other wood products manufactured in India, handicrafts top the list with each state having its renowned historical tradition. India exported wooden toys worth US\$ 0.8 million with total quantity of 0.25 million. United States is the largest buyer of wooden toys accounting for exports worth US\$ 0.25 million followed by Japan and Australia which imported wooden toys worth US\$ 0.18 million and US\$ 0.09 million respectively.

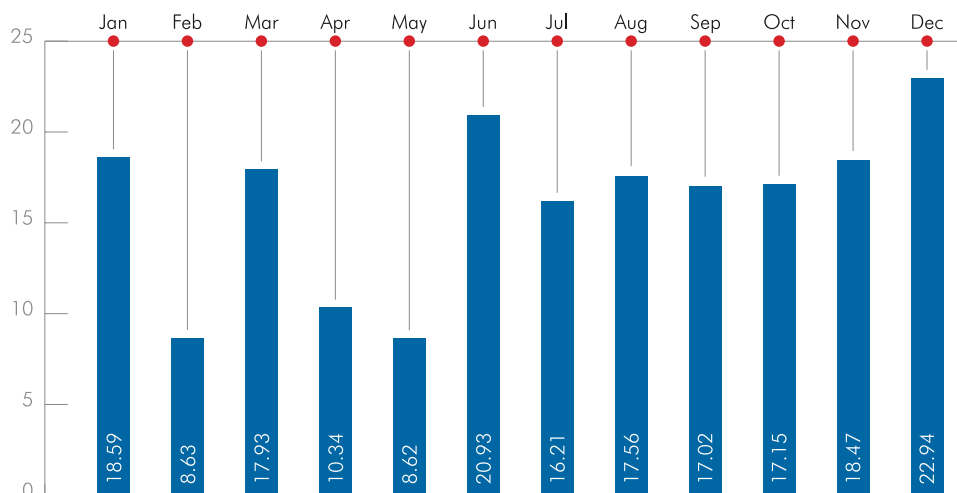
Other products include; Surat, has a tradition of parquetry-work, which is locally called Sadeli, Gujarat is synonymous with the wooden swing. The Kashmiri house-boat, made entirely of a specially seasoned wood that does not warp in water. Wooden furniture, trays, mirror frames, ornamentation, screens, jewel boxes, tables, trivets, bookends, etc.

## 7. Hardwood Imports

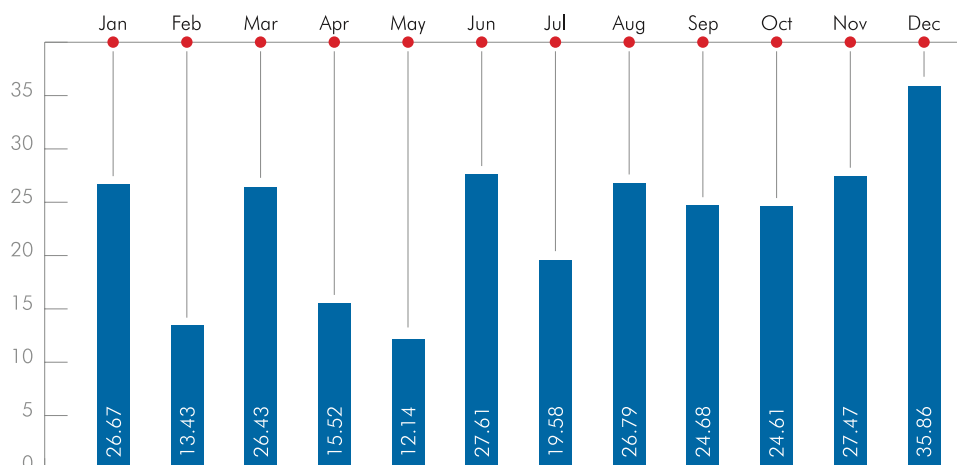
According to the Forest Survey of India (FSI), in 2011 the total forest area and tree cover in the country was about 782,871 square km, representing 23.81% of the geographical area in the country

and 0.08 hectare of the per capita availability of forest land, which is one of the lowest in the world. For this reason, since 1996, the indiscriminate clearing and illegal logging of forest in India have been banned.

**Hardwood Imports-2015 In Value (In US\$ Million)**



**Hardwood Imports-2015 In Quantity (In US\$ Million)**



## 7. Hardwood Imports

The government only allows strictly limited harvesting of wood based on authorized forest management plans. Most of the forests are state owned and only about 10 per cent are private owned (Ganguli & Eastin, 2007). Moreover, about 95% of all forests in India are classified as tropical, with low productivity due to soil degradation. India is one of the largest consumers of wood in South-East Asia. The country has sufficient availability of tropical wood, but growing concerns in recent years, about the environment and the need for conservation of forests, have led to reduction in the supply of wood.

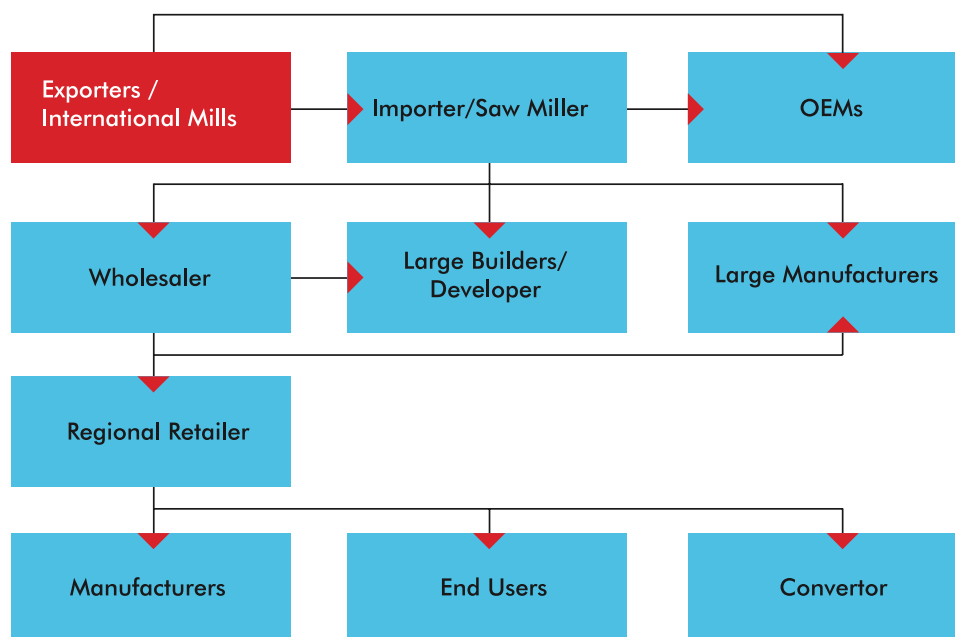
Imports are mostly from nearby Myanmar, Malaysia and Indonesia. Sizeable quantities of hardwoods are also sourced from Central Africa (Nigeria, Ivory Coast, Ghana, Togo and Gabon), the Americas (Brazil, Panama, Papua New Guinea,



Costa Rica and Ecuador), and even as far away as New Zealand. According to India's Directorate General of Commercial Intelligence and Statistics (2013), the top five major exporters of wood and wood products into India in 2010 were Malaysia, Myanmar, New Zealand, Papua New Guinea and Ivory Coast. Although the sawn wood sector is growing fast, it represents only 3% of the total imports of wood into India.



## 8. Trade Structure



## 9. Processing Hubs

Although furniture is manufactured in many parts of India, traditionally Jodhpur-Jaipur (in Rajasthan), Meerut-Saharanpur (Uttar Pradesh), parts of Kashmir, Gujarat and Kerala have held sway over hand-made, elaborately carved and lacquered exotic furniture and handicrafts for export. A few manufacturing hubs are well known for their exquisite carving, inlay, turning and lacquering.

Besides carved chests and almirahs, Gujarat is synonymous with wooden swings. The different varieties of swings are made using a range of wood from unvarnished hewn-wood to rich lacquer. Sankheda village has a unique tradition of engraving indigenously developed silver, gold and bronze colours on wood. Surat, also in Gujarat, has a tradition of parquetry-work, which is locally called Sadeli.

In Kashmir, extensive woodwork has been used for structures since ancient times. Houses are lined with wood ceilings worked in geometrical patterns and windows in lattice work. The Kashmiri houseboat, made entirely of a specially seasoned wood that does not warp in water, is a visual delight. Woodworkers in Hoshiarpur (Punjab) specialise in inlay of ivory, now more or less replaced by plastic. Intricate designs

have received royal patronage for many generations. Wooden furniture, trays and mirror frames repeat certain basic motifs and ornamentation derived from nature.

Saharanpur (Uttar Pradesh) is the most flourishing commercial centre for wood-carving. Sheesham and teak are used for the small-scale manufacturing of traditional, as well as modern products, such as, screens, cigarette boxes, tables, trivets, bookends, etc. Saharanpur also concentrates on wood seasoning and making it resistant to cracking and splitting.

Woodcrafts in the state of Kerala ('God's Own Country') vary from household furniture to animal figurines, which is a major economic and cultural activity. Carvings from Kerala represent its traditions and borrow strongly from spiritual values and thoughts. Some other prominent centres of wooden handicrafts in India are based in Saharanpur and Nagina (Uttar Pradesh), Hoshiarpur and Amritsar (Punjab), Jaipur and Jodhpur (Rajasthan), Jagdalpur and Behrampur in (Bengal), Chennapatna, Bengaluru and Mysore (Karnataka), Chennai (Tamil Nadu), and Ernakulam and Cochin (Kerala).

## 9. Processing Hubs



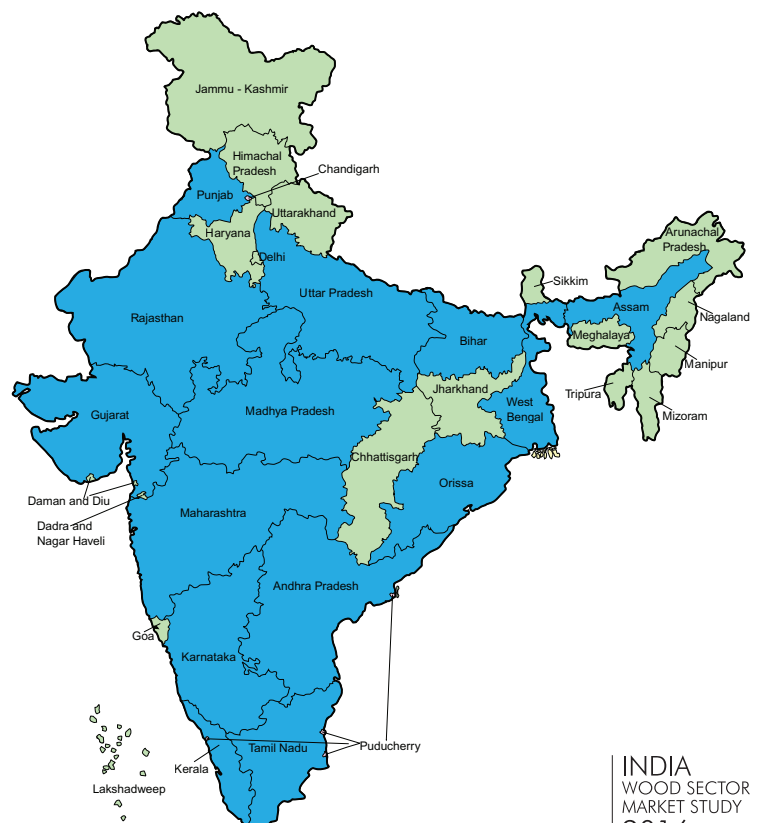
Nearly one-third of all handicrafts manufacturers and exporters use reclaimed wood, mainly Sheesham (*Delbergia sissoo*), Mango (*Mangifera indica*) and Babool (*Acacia spp.*). The other minor woods include Oak (*Quercus spp.*) and Teak (*Tectona spp.*) used in 1.98 % and 8.60 % of the total wood consumption.

Sheesham (also called Indian Rosewood) is the most widely used wood in the handicrafts industry. After teak, it is the second-most important cultivated timber species in the state of Punjab. Mango is soft and durable to carve small articles like gifts, decorative and other small articles, and is widely used in the wood-based handicrafts industry in Jodhpur.

Babool is widely found in Rajasthan and Gujarat; it does not need much water or care and is very popular in the western regions of Rajasthan. Around 21% wood used in Jodhpur handicrafts industry is Babool. The

last few years were the worst for the handicrafts industry, mainly on account of the global recession; but business is recovering gradually.

### Key Furniture Manufacturing States



## 9. Processing Hubs

### Key Challenges

#### Labour

The furniture manufacturing industry in India employs more than 4.11 million people as in 2013, and this is slated to rise to more than 11 million employees by the year 2022. The period 2017-22 will see a higher growth in employment vis-a-vis 2013-17 due to expected changes in consumer preferences and penetration of organized furnishing services in Tier-I and Tier-II towns.

Total employment in furniture manufacturing is concentrated in the five states of West Bengal, Uttar Pradesh, Maharashtra, Bihar and Gujarat. West Bengal, UP and Maharashtra alone account for nearly 38% of the work force. About 97% of the workforce involved in the furniture sector is school dropouts. Of this, 88% have an education qualification of secondary education or less.

In the organized furniture segment, workers account for more than half of the total workforce. Managerial and supervisors account for 10% of the total workforce and contractor workers account for nearly 25% of the total workforce. Labour is easily available in Uttar Pradesh, Madhya Pradesh, Bihar, West Bengal, Orissa and Maharashtra. People in these states have no alternative

employment opportunity and as they are minimally skilled, they find furniture and furnishing sectors attractive.

Youth aspiration for employment in this sector across demand clusters is quite low, considering that these geographies are metro, Tier-I and Tier-II cities with better employment prospects in other manufacturing or services segments. The area of real concern is the skill sets of technical people linked to production, management and product design.

#### Absence of Standards

There are no industry standards for furniture manufacturing at the moment. Lack of parameters and certifying agencies are resulting into low standards in manufacturing, wage rates, working environment, etc. Very few educational institutes have dedicated courses for the furniture industry. No standards or benchmarks have been identified for quality checks by the government or woodworking fraternity.



## 10. Trade Barriers & Import Regulations

Imports of wood and wood products in India decreased to US\$ 312.52 million in 2016 from US\$ 1210 million in 2015. Imports of wood and wood products in India averaged US\$ 1134.84 million from 1996 until 2016, reaching an all time high of US\$ 2707.68 million in 2012 and a record low of US\$ 270.34 million in 1996.

India has reduced tariffs on wood and wood products since the 1990s to facilitate imports, but the rates applying to processed wood products are high compared with unprocessed wood products. India's bound tariff rate (the highest tariff India can apply and still comply with its World Trade Organization commitments) for wood products is set at 40%, while the applied rates of most wood products range from 5% to 15%.

India has traditionally kept tariffs low on log imports (5%) relative to processed wood products in an effort to shift value addition (domestically produced lumber from imported logs) to India and reduce harvesting here. The structure of India's customs tariff and fees system is complex and characterized by a lack of transparency in determining net effective rates of customs tariffs, excise duties, and other duties and charges.

The high tariffs on imported processed and value-added wood products favours imports of unprocessed logs and protects less efficient domestic wood processors from international competition. Complex tariff and fees systems and a lack of transparency in determining duties and charges, in addition to state and local taxes and charges, increases the cost of imported wood products.

Legislation protects small enterprises, effectively restricting the size of saw mills which are relatively low-tech. Large foreign enterprises are unable to invest in Indian saw milling. Lengthy and bureaucratic customs and entry procedures and inconsistent application of customs valuation criteria increase the costs of imported wood products. Measures for protecting small-scale domestic industries include:

- Investment limits on small-scale enterprises
- Reservation of products for exclusive manufacture in small-scale sector
- Tax incentives and other subsidies for small-scale industries
- Government preference to small enterprises in procurement.

## 10. Trade Barriers & Import Regulations

### 10.1 Red-Tape

Bureaucratic business practices and inconsistencies -- and at times perceived corruption -- are rampant in the application of port entry regulations, such as questioning load weights. Port delays increase delivery costs, including the risk of demurrage charges. India's valuation procedures allow Indian Customs officials to reject the declared transaction value of an import when a sale is deemed to involve a lower price than the ordinary competitive price, effectively raising the cost of exporting to India beyond applied tariff rates.

India does not assess the basic customs duty, additional duty and special additional duty separately on the customs value of a given imported product. This raises concerns about the potential for importers paying higher duties than they should be liable for on the basis of the actual value of their imported product. India's Customs officials generally require extensive documentation, inhibiting the free flow of trade and leading to frequent and lengthy processing delays.

India has a regional trade agreement with the Association of South-East Asian Nations, which

has improved market access for the tropical wood product exporters in ASEAN. Preferential tariff are applied to ASEAN member countries for wood products; imports from ASEAN countries, particularly Malaysia and Myanmar, increased significantly from 2010, when the agreement came into force. Imports of tropical hardwoods from the ASEAN countries were also assisted by the Indian market's strong traditional preference for teak, which is considered the benchmark against which all other species are evaluated.

The presence of a large informal wood products sector has led to continued illegal harvesting and timber smuggling in some areas of the country, which has been estimated at 11 million m<sup>3</sup> in 2011. Multiplicity of check posts are a source of corruption and traffic obstruction: Inland transport of logs from the ports is primarily by trucks, with the carriers required to stop at state borders to ensure verification of compliance related to vehicle, driver, certificates and licences (road permit) and goods' origin, destination, value, weight and taxes paid.

## 10. Trade Barriers & Import Regulations

### 10.2 Trade Tariffs

The tariff structure of general application is composed of a basic customs duty (BCD) which is in effect the border tariff; the countervailing duty (CVD) or the equivalent of Central Excise Duty on equivalent goods manufactured in India; a “special additional duty” (special CVD), and an education assessment (“cess”).

Other non-tariff barriers include state taxes, which can be as high as 18% of the value of imports and various port of entry restrictions, which might add up to a large mark-up on imported items. Imports are subject to state-level value-added

or sales taxes and the Central Sales Tax, as well as various local taxes and charges. On top of the “cess”, goods shipped to some cities, such as Mumbai, attract “octroi”, a tax payable on demand for goods brought into Mumbai for use, consumption, or sale -- generally ranging from 2% to 8%.

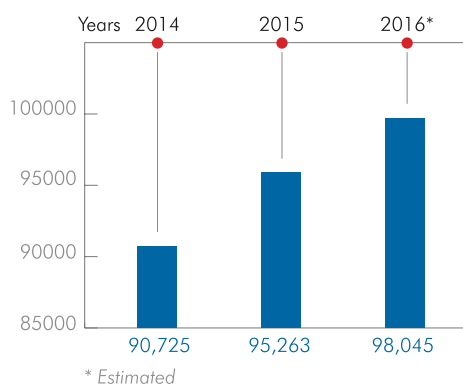
India allows importers to apply for a refund of the special additional duty paid on imports subsequently sold within India and for which the importer has paid state-level value-added taxes. Importers report that the refund procedures are cumbersome and time-consuming.

## 11. Growth Areas

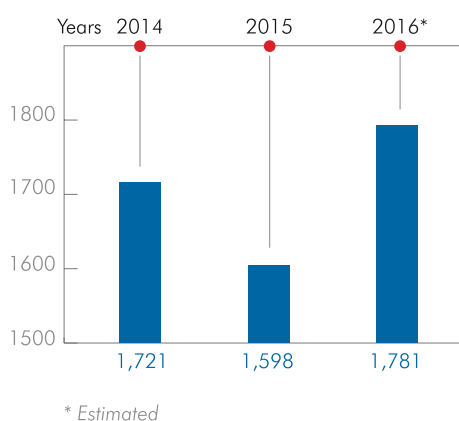
India's per capita income has been witnessing steady growth and has almost doubled in the last few years. This trend is likely to continue in the near future as the economy continues to grow. The trend in aggregate consumer spending also corroborates the consumption boom in the economy. The rate of growth

of spending on discretionary items has been growing at an average of 9% per year over the past 5 years. The age structure of India's population is also favourable – a staggering 44% of the population is in the under-19 age bracket, with its literacy rate pegged at well over 75%.

### YOY Wood Import Growth



### YOY Hardwood Import Growth



### 11.1 Foreign Direct Investment

FDI is an important driver of economic growth as it leads to productivity enhancement and is a major source of non-debt financial resources and employment generation. FDI inflows are critical for sustaining a high growth rate. The government is playing a proactive role in investment promotion through a liberal FDI policy.

A favourable policy regime and sound business environment have facilitated increase in FDI flows into the country. With a view to liberalising and simplifying the FDI policy to provide ease of doing business climate in the country that will also lead to larger FDI inflows, the government has undertaken various reforms.

## 11. Growth Areas

A number of sectors have been liberalized, including furniture retail, construction, plantation, trading, private sector banking and credit information companies, all of which has a direct impact on the woodworking industry. Swedish furniture major Ikea has already committed to investing US\$ 1615 million, Hettich has invested US\$ 76.9 million in local production, and Noida-based developer NCPL has entered into a licensing and marketing arrangement with Italian furnishing brand Casa Shamuzzi.



### Ikea facts

First store to be opened in Hyderabad and ready by 2017

Expected to open 25 stores across nine Indian cities by 2025

Plans to purchase land in Karnataka and open four stores valued at US\$300m

Plans to invest US\$300m in northern India and US\$ 230m in Mumbai

Procured 23 acre land in Navi Mumbai to open 400,000 sq ft store

Projected to spend US\$ 1.7 billion in stores and distribution

Seeking 450 acres at Kandla port for furniture hub

Plans to hire 15,000 to set up 25 stores and employ 37,500 more indirectly

Plans to integrate outlets with online trading to facilitate customers

Aims to launch experience centres in Hyderabad

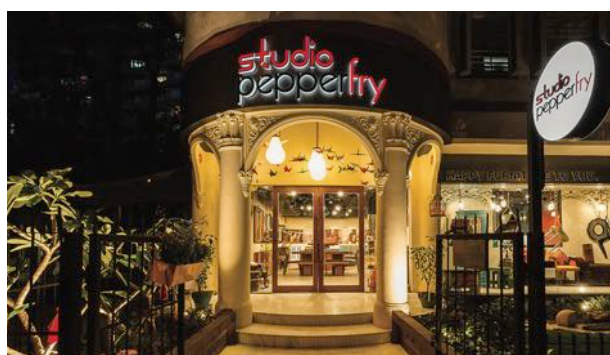
Seeking separate zones for retail stores in cities

Plans to buy plots under the US\$ 100-billion DMIC infrastructure projects



# 11. Growth Areas

## 11.2 Furniture Retailing



The Indian Furniture Industry is estimated to be worth US\$ 17,922 million. Of this, wooden furniture accounts for US\$ 5,358 million. More and more wooden furniture is imported and imports are growing at 60% year-on-year. The Indian furniture market offers attractive growth options for multinational players looking at the Indian market, which is moving more towards the organised segment.

This is marked by increasing customer preference for readymade, branded furniture. Furniture giant IKEA is planning to expand its operations in the Indian market, with stores in Hyderabad, Bengaluru, Mumbai and the Delhi capital region, totalling 25 stores across the country. Ikea has also evinced keen interest in a proposed “furniture (manufacturing) cluster” near Kandla port in Gujarat.

## 11.3 Online Retailing

The online furniture market, projected at US\$130 million, is expected to grow with a CAGR of 75% and reach the US\$700 million mark by the year 2020 according to business reports. Credit goes to the mushrooming of online furniture companies in the last four years, led by Pepperfry (set up in January 2012), Urban Ladder and FabFurnish (both July 2012).

E-commerce giant, Amazon India, has forayed into furniture sales and is setting up more fulfilment centres or warehouses in the country before the end of the current fiscal. Similarly, Flipkart forayed into home and furnishings with the launch of its home decor range in March 2015 and furniture in August 2015 and witnessing a growth of 50% month-on-month!

Another major player ShopClues announced a furniture store with a wide assortment of 40,000 products across 60 categories on its platform. Kurl-On Enterprises, India’s leading home comforts company, has also announced its strategic partnership with Amazon India, becoming the first company in the sofa category to launch a brand store at Amazon India.

## 11. Growth Areas

In the four years since it set up the online furniture retail marketplace, Pepperfry has shipped more than 0.1 million units of furniture, signed up more than 1,000 merchants. Online marketplace Paytm is betting big on furniture, bringing on board brands in this segment. Furniture brand Godrej Interio is also on the verge of unveiling its own e-commerce platform, to help customers make their choice from a wide range of products.

characteristic of a developed nation – is providing tremendous push to the realty sector in India. Constituents of the services sector are IT, ITes, business and knowledge process hubs, the hospitality industry, retail, entertainment, banking and financial service providers. Bengaluru, Mumbai and New Delhi have emerged as the top three investors' choice for real estate investment.

### 11.4 Institutional Furniture

Office space absorption is increasing in India's seven major cities as corporates look at expanding businesses. With a share of 41% the IT/ITes sector would be an important player in the office space segment in India. The banking, financial services and insurance (BFSI) sector accounts for 14% of office space occupancy.

According to a research report by the National Association of Software and Services Companies (Nasscom), the Indian software and services exports sector clocked revenues of US\$ 14.43 billion registering a growth of 34.5% in financial year 2004-05. The growth of the service sector, which now constitutes more than the 50% of the GDP – more

### 11.5 Flooring



Flooring is one area in the construction industry that has been witnessing rapid changes over the past two decades. The advent of several new technologies and the increased use of specialised machinery have meant that the field has changed beyond recognition. Today, about 500 million square metres of laminate flooring and

## 11. Growth Areas

another 120 million square metres of engineered wood flooring are consumed annually.

As awareness about different products increases, customers want to move away from conventional materials like stone, mosaic, ceramic tiles and carpets to newer, more versatile material such as laminate and engineered wood flooring. If recent consumption patterns are observed, wood flooring should take in about 15% of the market, or almost 10 times the current size! The current growth rate of about 20% per annum in this category is a good indicator of things to come.

### 11.6 Modular Kitchens

The modular kitchen market in India has been growing at a rapid rate, albeit beginning from a low base. The market is largely unorganised, with the presence of local and small players. The unorganised market (estimated at 75% of the total) includes carpenters making custom-designed kitchens based on the varied requirements of different households.

Modular kitchens are largely focused towards the middle class and affluent households in urban India, and offerings are based on functional practicality, design and appeal.

Increase in the number of nuclear families, rise in the number of working couples, higher disposable incomes, and increased affordability of such offerings are all factors that have driven awareness levels and increased demand for modular kitchens.

The organised kitchen market is currently pegged at US\$ 169 million. Of this, the premium segment accounts for US\$ 46 million and is growing at 18% year-on-year. Total estimated production of kitchens in the unorganised sector (small producers) amounted to 0.43 million units in 2014. Imports account for 32% of the modular kitchen market, dominated by Italy (51%) and Germany (27 %).

### 11.7 Plywood Industry

Plywood forms the major segment of the wood-based industry in the country. A large number of units are operating in the large, medium and small-scale sectors. The plywood industry is estimated at US\$ 1200 million and the laminate industry at almost US\$ 462 million, both expected to grow 10% annually. The Indian plywood market is fragmented with small and medium-sized companies accounting for almost 80% of the total market. The rest is supplied by large companies with the

## 11. Growth Areas

advantage of volume, quality and superior manufacturing facilities.

Plywood alone accounts for 78% of the wood panel market in India, the rest comprising engineered panels like MDF and particleboard. For the housing interiors industry, the Indian market is still dominated by plywood and block board, although the trend is changing following a growing share for particleboard and MDF. Plywood comprises around 60% of the interior infrastructure industry and is set to gain the most.

According to Federation of Indian Plywood and Panel Industry (FIPPI), the total output of the plywood and panel products sector is about 220 million square metres, with a market turnover of approximately US\$ 585 million. The industry operates at less than 33% of capacity, due to the shortage of domestic raw materials and the poor financial health of several players.

### 11.8 Handicrafts

The rising appreciation for Indian novelty handicrafts by consumers in developed countries, cheap and skilled labour and large supply of timber species has made the Indian industry one of the important suppliers of handicrafts to the world market. This industry provides employment to over 5 million artisans and supports and provides major opportunity of employment in rural India.

In addition to the high potential for employment, the sector is economically important from the point of low capital investment, high ratio of value addition, and high potential for export and foreign exchange earnings for the country. The export revenue share of the wood-based handicrafts is close to 40% of the total handicrafts industry (US\$ 2 billion) in India.

## 12. Appendix

### Concluding Remarks

India, the world's eighth largest consumer base is clearly in the path of urbanisation and from the comments of various stakeholders consulted and contacted and from their feedback, it is evident that India has a huge appetite for furniture and that too solid wood furniture. The consumption is likely to grow at greater rate due to population growth, rising living standards, bigger disposable income, growing retail presence, among many other reasons. Timber continues to be the most preferred material and the preferences are not likely to change in favour of alternate materials. Increase in demand for wood and wood based products will directly result in more demand for imported wood because India cannot satisfy its demand for wood from domestic resources. Indian forest regulations are stringent and also the domestic source and plantation wood are minimal in volume. Nevertheless to mention, this potential has opened huge competition among wood exporting countries and thereby more challenges, complexities in trade. Despite the changes made on prevailing policies and new incentives offered for more international trade, the trade structure requires more refinements.

Even though the current market is disorganised, a major share of traders, OEMs, and converters are becoming aware about basic elements like; certified wood, chain-of-custody, grading norms, etc., which offers them timeliness, transparency and reliability. Overall, the market is showing a good shift towards organised manufacturing and sustainable growth which reflects a steady growth for imported wood.

### Methodology

The study is based on field visits, consultations with the stake holder, key players, and analysis of data on key variables using statistical methods. The

report was collected from both primary and secondary sources. The primary data was collected through interviews and discussions, based on structured and unstructured questionnaires, with key stake holders.

### Questionnaire

1. Which are the major wooden finished products manufactured in your region?
2. Which are the major manufacturing pockets in India?
3. What is your overview about furniture and per se solid wood working sector?
4. What are the demand drivers for woodworking products?
5. Do you think Construction and Real Estate sector has big impact on wood consumption?
6. Which are the major finished products under hardwood sector?
7. Which are the major species of hardwood being used?
8. Which are the major countries exporting hardwood to India and to which port/region?
9. What according to your perspective is going to increase or decrease wood imports?
10. What is the existing trade structure of hardwood/timber in India?
11. What are the challenges faced by importers and manufacturers?
12. What are the trade barriers concerned to hardwood import?
13. What is the role played by associations & institutions?
14. Is technology addressing the market needs and what is your recommendation?
15. What is your socio-economic and demographic overview about woodworking sector?
16. What would be your recommendation to improve the whole woodworking eco-system?



## 12. Appendix

### References and Data Sources

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- Federation of Indian Plywood & Panel Industry (FIPPI)
- Kerala Forest Research Institute (KFRI)
- Institute of Wood Science & Technology (IWST)
- Federation of Indian Chambers of Commerce (FICCI)
- Associated Chambers of Commerce (ASSOCHAM)
- The International Tropical Timber Organization (ITTO)
- Indian Institute of Forest Management, Bhopal
- Chemical and Allied Export Promotion Council of India (CAPEXIL)
- National Skill Development Council (NSDC)
- Indo-Italian Chamber of Commerce & Industry (India)
- Census India ([www.censusindia.gov.in](http://www.censusindia.gov.in))
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- Business Standard Newspaper
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- Masterbuilder Magazine
- Ply Reporter Magazine
- Surfaces Reporter Magazine

### Statistical Data

- Zaubas ([www.zaubas.com](http://www.zaubas.com))
- Eximpulse ([www.eximpulse.com](http://www.eximpulse.com))
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- Wikipedia ([www.en.wikipedia.org](http://www.en.wikipedia.org))

### Exchange Rates Used

- INR 65 : US\$ 1
- INR 75 : Euro 1
- INR 67 : CHF 1

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